

REMARKS

In view of the above amendments and following remarks, Applicants request reconsideration and allowance of the above-identified application.

Claims 24 and 29-31 are now pending in this application, with Claims 24 and 29 being independent. By this Amendment, Applicants have added new Claims 29-31, amended Claim 24, and cancelled Claims 21-23 and 25-27. No new matter has been added.

Claims 20-28 stand rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 5,496,616 (Harris) in view of U.S. Patent Nos. 4,247,190 (Hashimoto, et al.) and 5,340,637 (Okai, et al.). Claims 21-28 stand rejected under the judicially-created doctrine of obviousness-type double patenting over (i) Claims 1-3, 7, 9, 12, 20 and 22-28 of U.S. Patent No. 6,731,431 (Sekine) in view of Okai, et al., and (ii) Claims 1, 3, 6-8, 10 and 11 of U.S. Patent No. 6,523,963 (Nakabayashi). Applicants traverse these rejections.

Applicants' invention, as recited in independent claim 24, is directed to a diffractive optical element characterized by a diffraction grating portion which includes first and second transparent diffraction gratings. The first transparent diffraction grating and a first transparent alignment pattern are integrally formed of a first resin. The second transparent diffraction grating and a second transparent alignment pattern are integrally formed of a second resin having a refractive index smaller than that of the first resin and having an Abbe constant larger than that of the first resin. The first and second transparent diffraction gratings are accumulated with an air space, and disposed so as to oppose each other.

Harris is directed to a binary diffractive optical element. The Office Action states that Harris describes that the two binary diffractive optical elements are accumulated with an air space therebetween. Applicants submit that Harris fails to describe the use of first and second resins for the different diffraction gratings and alignment patterns, with the second resin having a refractive index smaller than that of the first resin and having an Abbe constant larger than that of the first resin.

Hashimoto, et al. is cited in the Office Action merely as describing the use of pins that serve as alignment markings. Applicants submit, however, that this document fails to remedy the deficiencies discussed above with respect to Harris, inasmuch as Hashimoto, et al. also fails to describe the recited differences between the first and second resins.

Okai, et al. is directed to a method of fabricating diffraction gratings. The Office Action cites this document as describing a molding process forming a diffractive optical structure comprising a resin on a glass substrate. Again, however, Applicants submit that this document does not suggest the specific differences between the first and second resins recited in the present invention.

Accordingly, Applicants submit that Harris, Hashimoto, et al., and Okai, et al., taken alone or in combination, fail to disclose or suggest at least the features of a first transparent diffraction grating and a first transparent alignment pattern being integrally formed of a first resin, and a second transparent diffraction grating and a second transparent alignment pattern being integrally formed of a second resin having a refractive index smaller than that of the first resin and having an Abbe constant larger than that of the first resin, as recited in independent claim 24.

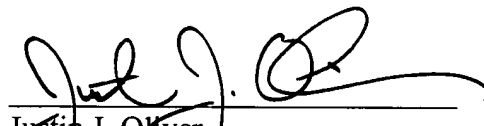
For the foregoing reasons, Applicants request withdrawal of the rejection under 35 U.S.C. § 103.

With respect to the double patenting rejection, Applicants submit that the indicated claims of Nakabayashi and Sekine do not suggest the differences in the resins used in the diffractive optical element recited in independent claim 24. Accordingly, Applicants submit that independent claim 24 is patentably distinct over the claims of those cited patents, and request withdrawal of the double patenting rejection.

Applicants also submit that dependent claim 28 is allowable for the same reasons discussed above with respect to independent claim 24, from which depends. Applicants also request favorable consideration of new claims 29-31, which Applicants believe are allowable because of the novel molding method recited therein.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,


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